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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/715,990

11/18/2003

Hiromi Fujisawa

42534-9600

4880

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7590

06/10/2004

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EXAMINER

TRAN, MAI HUONG C

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/715,990

Applicant(s)

FUJISAWA, HIROMI

Examiner

Mai-Huong Tran

Art Unit

2818

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 6-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 17-19 is/are allowed.
- 6) ☒ Claim(s) 1,3 and 14 is/are rejected.
- 7) ☒ Claim(s) 2,4,5,15 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/10/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restriction

Application's election without traverse of Group I (Claims 1-5 and 14-19) drawn to a semiconductor device is acknowledged for prosecution in the subject application . Accordingly, claims 6-13 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Applicants have the right to file a divisional application covering the subject matter of the non-elected claims.

Claim Rejections - 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 14 are rejected under 35 U. S. C. § 102 (e) as being anticipated by U.S. Patent No. 6,080,651 and 6,036,080 to Takahashi et al.

Regarding to claim 1, Takahashi discloses a wire loop comprising a wire connecting a first bonding point A and a second bonding point E therethrough; the wire including a ball 7a bonded to the first bonding point A, a neck portion 5a adjacent to the ball 7a and a major portion 5 extending from the neck portion to the second bonding point E; wherein the major portion of the wire has a crushed part 5 formed in proximity

to the neck portion by crushing the part of the wire together with a top portion of the ball (col. 1, lines 58-61, col. 3, lines 40-67, cols. 4-5, and figs. 1-2 and 6-7).

Regarding to claim 14, Takahashi discloses a semiconductor device comprising a first bonding point A; a second bonding point E; and a wire bonded 5 to the first bonding point and the second bonding point to connect first bonding point and the second bonding point therethrough; wherein the wire includes a ball 7a bonded to the first bonding point, a neck portion 5a adjacent to the ball and a major portion 5 extending from the neck portion to the second bonding point; and wherein the major portion of the wire 5 has a crushed part 5a formed in proximity to the neck portion by crushing the part of the wire together with a top portion of the ball (col. 1, lines 58-61, col. 3, lines 40-67, cols. 4-5, and figs. 1-2 and 6-7).

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,080,651 to Takahashi et al. in view of 6,036,080 to Takahashi et al.

Regarding to claim 3, Takahashi (6,080,651) discloses the claimed invention except for the wire loop wherein the major portion of the wire includes a horizontal portion extending in a substantially horizontal direction from the neck portion and an inclined portion which extends from the horizontal portion to the second bonding point and which has an end thereof bonded to the second bonding point; and the inclined portion is connected to the horizontal portion through a second kink formed in a part of the wire therebetween. Takahashi (6,036,080) teaches the wire loop wherein the major portion of the wire includes a horizontal portion extending in a substantially horizontal direction from the neck portion and an inclined portion which extends from the horizontal portion to the second bonding point and which has an end thereof bonded to the second bonding point; and the inclined portion is connected to the horizontal portion through a second kink formed in a part of the wire therebetween as set forth in col. 1, lines 12-24, and fig. 6b.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the wire loop wherein the major portion of the wire includes a horizontal portion extending in a substantially horizontal direction from the neck portion and an inclined portion which extends from the horizontal portion to the second bonding point and which has an end thereof bonded to the second bonding point; and the inclined portion is connected to the horizontal portion through a second kink formed in a part of the wire therebetween, as taught by Takahashi (6,036,080) in order to provide a wire bonding method which forms a strong kink at the uppermost point of the neck height or at

both the uppermost point of the neck height and the bent portion in a trapezoid loop, thus providing a stable wire loop shape that has a high shape retention force (col. 2, lines 17-23).

Allowable Subject Matter

Claims 2, 4, 5, and 15-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 17-19 are allowed.

Conclusion

Any inquiry concerning this communication on earlier communications from the examiner should be directed to Mai-Huong Tran, (571) 272-1796. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 6:30 PM. The examiner's supervisor, David Nelms can be reached on (571) 272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Mai-Huong Tran



David Nelms
Supervisory Patent Examiner
Technology Center 2800